

**DATE:** May 27, 2003

**TO:** Region Engineers  
Region Delivery Engineers  
TSC Managers  
Resident/Project Engineers  
Region Construction Engineers

**FROM:** Larry E. Tibbits  
Chief Operations Officer

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**SUBJECT:** Bureau of Highway Instructional Memorandum 2003-09  
Changes in the Method of Calculating the Blended Aggregate Wear Index  
(AWI) Value for all Top Course Hot Mix Asphalt (HMA) Mix Designs

To assure that all top course HMA mixtures maintain adequate friction values during the pavement's life, changes to the current method of calculating AWI are needed.

An AWI value is determined by means of petrographic analysis, circular wear track, or nomograph for each aggregate component used in the mix design. Using each component's AWI value, the contractor or consultant calculates an overall AWI value for the HMA aggregate blend. Construction and Technology Support Area's central laboratory checks the submitted calculation and reports the blend's AWI value on every top course mix design.

Effective immediately, the following changes to the Michigan Test Method for Determining an Aggregate Wear Index from Sample Petrographic Composition and Wear Track Factors (MTM 112) applies to all top course mix designs. This includes all previously approved designs within the last two years that the contractor may wish to use, as well as any future designs.

In Section 9.3 of MTM 112, calculate the AWI for the blend using the cumulative percent retained on the No. 16 sieve for each of the individual aggregates as follows:

Quarried Stone, Mine Rock, and Slag sources will use the AWI number established by MDOT's circular wear track testing.

Natural Aggregate Sand and Gravel sources with established nomographs will run the Michigan Test Method for Measuring Fine Aggregate Angularity (MTM 118) on all aggregates with more than 80 percent passing the No. 4. Sieve. The percent crushed in these fine aggregates for use in determining the AWI value from the nomograph is obtained from Table 1.

**Table 1**

Angularity Index	Percent Crushed
$\leq 3.0$	30
$> 3.0$ to $\leq 4.0$	70
$> 4.0$	95

Natural aggregate sand and gravel sources without a nomograph must follow the Procedures Manual for Mix Design Processing for submitting aggregate samples, but must include approximately 200 grams of each of the No. 8 and No. 16 fractions. MDOT will conduct the necessary tests and report the results to the aggregate supplier.

Natural aggregate sand and gravel sources with an established nomograph and less than 80 percent passing the No. 4 sieve, will use the percent crushed of the retained No. 4 aggregate to determine the appropriate AWI from the nomograph.

Contact aggregate quality control staff or the bituminous mix design engineer if there are any questions about this policy at 517-322-1087.

This instructional memorandum will be incorporated into the next revision of the Procedures Manual for Mix Design Processing.

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Chief Operations Officer

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Engineer of Delivery

BOHD:C/T:ACR:kab

Subject Index: Bituminous, Procedures Manual

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